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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,297

07/13/2006

Harald Faber

4959/PCT

4116

21553 7590 10/13/2009
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EXAMINER

WOOD, JONATHAN K

ART UNIT

PAPER NUMBER

3754

MAIL DATE

DELIVERY MODE

10/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,297	Applicant(s) FABER ET AL.	
	Examiner JONATHAN WOOD	Art Unit 3754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 10-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,2 and 10-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2, 10-12, 17, 19-21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,978,252 to *Sperber* (*Sperber*) in view of US

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Patent No. 4,844,101 to *Hirsch et al.* (*Hirsch*) and US Patent No. 3,913,800 to *Logan* (*Logan*).

Sperber shows a cellular wheel sluice (66) constructed as an axial blow through sluice comprising a supply chute (14) and there below a cellular wheel provided with radial cellular wheel webs (74) forming dosing chambers (80) that is arranged to rotate about a horizontal axis (center of 72) in a housing (68) which has blow-in and blow-out holes (82 and 84, respectfully) arranged in the housing below the horizontal axis of the cellular wheel within a rotational area of the cellular wheel webs and positioned opposite each other in vertical side walls (rear end wall and front end wall, col. 5, ll. 8-12) of the housing (Figure 4, col. 5, ll. 8-17), wherein the cellular wheel webs are provided with gap seals (78) positioned at radial outer ends thereof (col. 4, ll. 66-68). *Sperber* fails to disclose the area of the blow-in hole having an injection nozzle or the gap seals being spaced from a cylindrical wall of the housing and being made of a material as hard as a metal.

However, *Hirsch* shows a cellular wheel sluice (16), characterized in that an injection nozzle (18) is integrated in the area of the blow-in hole (Figure 2). Further, *Logan* shows a rotary feeder with cellular wheel webs (17) which have gap seals (30) attached thereto which are spaced from a cylindrical housing wall (col. 2, ll. 61-64) and are made of a material as hard as a metal (col. 4, ll. 7-9). It would have been obvious to one having ordinary skill in the art at the time of the invention, under the teachings of *Hirsch*, to have included an injection nozzle structure like that of *Hirsch* in the area of the blow-in hole of *Sperber* in order to increase the velocity of the transport stream and

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consequently accelerate the conveying effect of the particulate in the dosing chamber out of the blow-out hole (*Hirsch*, col. 6, ll. 13-17). It would have been further obvious to one having ordinary skill in the art at the time of the invention, under the teachings of *Logan*, to have replaced the gap seals 78 of *Sperber* with the gap seals of *Logan* which are made of metal and spaced from the housing wall in order to reduce wear (*Logan*, col. 1, ll. 28-37 and col. 2, ll. 7-9).

Regarding claim 2, *Sperber* as modified by *Hirsch* and *Logan* shows the injection nozzle (*Hirsch*, 18) is set-in coaxially and inwardly in a blow-in pipe socket (*Hirsch*, 20) secured to the blow-in hole (*Sperber*, 82), the injection nozzle causing a reduction of the blow-in cross-section in the area of the blow-in hole relative to the blow-in pipe socket cross-section (*Hirsch*, Figure 2).

Regarding claims 10 and 19, *Sperber* as modified by *Hirsch* and *Logan* shows the blow-in hole (*Sperber*, 82) and the blow-out hole (*Sperber*, 84) are positioned axially opposite each other in the vertical side walls of the housing (*Sperber*, Figure 1, col. 5, ll. 8-17), and the cross-sectional area of the blow-out hole has about the cross-section of the dosing chamber (*Sperber*, Figure 4).

Regarding claim 11, *Sperber* as modified by *Hirsch* and *Logan* shows the injection nozzle (*Hirsch*, 18) is constructed as a pipe shape (*Hirsch*, Figure 2) and comprises a nozzle opening having a diameter corresponding to less than one half of the median diameter of the dosing chamber (*Hirsch*, Figure 2).

Regarding claim 12, *Sperber* as modified by *Hirsch* and *Logan* shows the gap seals are constructed as separate cutting edges (*Logan*, "blades" 30) made of a spring

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steel or other low wear steel alloy (*Logan*, col. 4, ll. 7-14) and that they are exchangeably secured to the cellular wheel webs (*Logan*, col. 2, ll. 53-53).

Regarding claim 17, *Sperber* as modified by *Hirsch* and *Logan* shows the radial spacing gap (*Logan*, S) having a radial measure from 0.2 mm to 0.5 mm (Figure 3, see Y-Axis of chart).

Regarding claim 20, *Sperber* shows a blow-through cellular wheel feeder (66) comprising a housing (68) that comprises a cylindrical wall (indicated by 66 in Figure 1) extending concentrically around a horizontal axis (center of 72) and planar vertical side walls (rear end wall and front end wall, col. 5, ll. 8-12) at axial ends of the cylindrical wall, a supply chute (14) that communicates into the cylindrical space through a supply opening (58) in the cylindrical wall, a cellular wheel that comprises plural cellular wheel webs (74) extending radially outwardly from a central wheel hub (72), and respective gap seals (78) arranged at radially outer edges of the wheel webs (col. 4, ll. 66-68), wherein the wheel webs and hub define dosing chambers (80) with the cylindrical wall of the housing, a blow-in hole (82) provided below the horizontal axis in a first side wall, and a blow-out hole (84) provided below the horizontal axis axially across from the blow-in hole (Figure 4, col. 5, ll. 8-17) in a second side wall. *Sperber* fails to disclose an injector nozzle mounted to the housing at the blow-in hole or the gap seals being arranged to leave a radial spacing between the gap seals and the cylindrical housing wall and being made of a material as hard as a metal.

However, *Hirsch* shows a cellular wheel sluice (16), characterized in that an injector nozzle (18) is mounted to a housing (16a) at a blow-in hole (Figure 2, via 20)

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Further, *Logan* shows a rotary feeder with cellular wheel webs (17) which have gap seals (30) attached thereto which are arranged to leave a radial spacing (S) from a cylindrical housing wall (col. 2, ll. 61-64) and are made of a material as hard as a metal (col. 4, ll. 7-9). It would have been obvious to one having ordinary skill in the art at the time of the invention, under the teachings of *Hirsch*, to have included an injector nozzle structure like that of *Hirsch* attached to the housing of *Sperber* at the blow-in hole in order to increase the velocity of the transport stream and consequently accelerate the conveying effect of the particulate in the dosing chamber out of the blow-out hole (*Hirsch*, col. 6, ll. 13-17). It would have been further obvious to one having ordinary skill in the art at the time of the invention, under the teachings of *Logan*, to have replaced the gap seals 78 of *Sperber* with the gap seals of *Logan* which are made of metal and spaced from the housing wall in order to reduce wear (*Logan*, col. 1, ll. 28-37 and col. 2, ll. 7-9).

Regarding claim 21, *Sperber* as modified by *Hirsch* and *Logan* shows the radial spacing gap (*Logan*, S) having a radial measure from 0.2 mm to 0.5 mm (Figure 3, see Y-Axis of chart).

Regarding claim 24, *Sperber* as modified by *Hirsch* and *Logan* shows the gap seals are constructed as cutting knife edges (*Logan*, "blades" 30).

5. Claims 13, 16 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sperber* in view of *Hirsch* and *Logan* as applied to claims 12 and 24 above, and further in view of US Patent No. 4,268,205 to *Vacca et al.* (*Vacca*).

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Regarding claims 13 and 16, *Sperber* as modified by *Hirsch* and *Logan* shows all aspects of applicant's invention as set forth in claim 12, but does not disclose a counter cutting blade in the supply chute arranged at a skewed slant to the horizontal axis. However, *Vacca* shows a rotary feeder (13) with a supply chute (24) leading into it, wherein the chute has a counter cutting blade (54, col. 5, ll. 29-31) arranged at a skewed slant to the horizontal axis (Figure 5) and spaced from the gap seals (col. 6, ll. 26-28). It would have been obvious to one of ordinary skill in the art at the time of the invention, under the teachings of *Vacca*, to have provided the supply chute of *Sperber* as modified by *Hirsch* and *Logan* with a counter cutting blade like that of *Vacca* in order to remove any particles which may be clinging to the gap seals (*Vacca*, col. 5, ll. 25-28).

Regarding claim 25, *Sperber* as modified by *Hirsch* and *Logan* shows all aspects of applicant's invention as set forth in claim 20, but does not disclose a counter cutting member arranged on a side wall of the supply chute or a deflector scraper arranged above the counter cutting member. However, *Vacca* shows a rotary feeder (13) with a supply chute (24) leading into it, wherein the chute has a counter cutting member (54, col. 5, ll. 29-31) attached to a side wall thereof and a deflector (15) arranged above the counter cutting member. It would have been obvious to one of ordinary skill in the art at the time of the invention, under the teachings of *Vacca*, to have provided the supply chute of *Sperber* as modified by *Hirsch* and *Logan* with a counter cutting member and deflector like that of *Vacca* in order to remove any particles which may be clinging to the gap seals (*Vacca*, col. 5, ll. 25-28) and to prevent any particulate material from falling on

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the gap seals while they are being engaged by the counter cutting member (*Vacca*, col. 5, ll. 21-25).

6. Claims 14 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sperber* in view of *Hirsch* and *Logan* as applied to claims 1 and 20 above, and further in view of US Patent No. 4,155,486 to *Brown* (*Brown*).

Sperber as modified by *Hirsch* and *Logan* shows all aspects of applicant's invention as set forth in claims 1 and 20, but does not disclose the housing having a wear liner. However, *Brown* shows a rotary feeder (10) with a housing (12), wherein the inside of the housing has a wear liner (42) made of wear-resistant material (col. 3, ll. 3-9 and col. 4, ll. 23-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the inside of the housing of *Sperber* as modified by *Hirsch* and *Logan* with a wear-resistant liner in order to prevent wear of the housing by the gap seals and wheel webs.

7. Claims 15, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sperber* in view of *Hirsch* and *Logan* as applied to claims 1 and 20 above, and further in view of US Patent No. 4,906,144 to *Matsueda* (*Matsueda*).

Sperber as modified by *Hirsch* and *Logan* discloses the claimed invention except that the wheel webs are straight instead of helical. *Matsueda* discloses that a helical wheel web is an equivalent structure to a straight wheel web (col. 5, ll. 63-68).

Therefore, because these two types of wheel webs were art-recognized equivalents at

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the time of the invention, one of ordinary skill in the art would have found it obvious to substitute helical wheel webs for the straight wheel webs. Regarding claim 28, a helical wheel web would inherently extend at a slant relative to the horizontal axis.

8. Claims 18, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sperber* in view of *Hirsch* and *Logan* as applied to claims 1 and 20 above, and further in view of US Patent No. 5,725,332 to *Harper et al.* (*Harper*).

Sperber as modified by *Hirsch* and *Logan* shows all aspects of applicant's invention as set forth in claims 1 and 20, but does not disclose the dosing chambers and blow-out hole having a trapezoidal shape. However, *Harper* teaches a rotary feeder (10) which has trapezoidally shaped dosing chambers (26, Figure 2) and a correspondingly shaped trapezoidal blow-out hole (40, col. 4, ll. 22-25). It would have been obvious to one having ordinary skill in the art at the time of the invention to have made the dosing chambers and blow-out hole trapezoidal in order to increase the strength of the hub 72 by increasing its diameter as well as to ensure efficient airflow through the dosing chamber by shaping the blow-out hole similarly to the dosing chambers.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 2, and 10-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent No. 4,231,495 to *Lund* discloses a rotary feeder which utilizes a counter cutting blade, similar to applicant's claims 13, 16, and 25.
- US Patent No. 5,368,311 to *Heyl* discloses a rotary feeder which has gap seals spaced from the interior of the housing.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN WOOD whose telephone number is

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(571)270-7422. The examiner can normally be reached on Monday through Friday, 7:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on (571)272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JKW/

Examiner, Art Unit 3754

/Kevin P. Shaver/

Supervisory Patent Examiner, Art Unit 3754